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PATENT
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Replacement Abstract:

Novel data structures, methods and apparatus for finding a full match between a search pattern and a pattern stored in a leaf of the search tree. A key is input, a hash function is performed on the key, a direct table (DT) is accessed, and a tree is walked through pattern search control blocks (PSCBs) until reaching a leaf. The search mechanism uses a set of data structures that can be located in a few registers and regular memory, and then used to build a Patricia tree structure that can be manipulated by a relatively simple hardware macro. Both keys and corresponding information needed for retrieval are stored in the Patricia tree structure. The hash function provides an n->n mapping of the bits of the key to the bits of the hash key.

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